

EDITORIAL ARTICLES.

THE ARRAIGNMENT OF CATGUT.—THE DESIRABILITY OF SIMPLICITY OF METHODS IN OBTAINING CERTAIN ASEPSIS IN SURGICAL WORK.

In the surgical clinic at Berne,¹ a series of cases of interrupted healing of wounds occurred, which pursued so typical a course as to suggest to Kocher the existence of a common origin of infection. A total and thorough revision of all antiseptic apparatus and dressings failed to correct the trouble, and thus the question was narrowed down to the catgut used in the clinic. Acting upon this, the catgut was finally excluded from consideration by its complete abandonment when the usual aseptic course of cases operated upon at the clinic was at once restored. At first, a comparison of cases treated by silk for purposes of both ligature and suture, with those in which catgut was used, demonstrated, in a most convincing manner the greater safety of the former, as compared with the latter in furnishing immunity from wound infection, other conditions remaining precisely the same.

There can be no question but that in the catgut of commerce, produced as it is in large quantities, and prepared by those who possess in but a slight degree a knowledge of the absolute and rigid precautions needful in order to obtain typical aseptic wound-healing, and in whom there is but little reason to expect the exercise of that care so essential in the preparation of this exceedingly important part of the *armamentarium chirurgicum*, hidden sources of infection, and dangers threatening at once to the life and limb of the patient, as well as to the reputation of the surgeon exist. And without doubt this is likewise true of the surgical silk, gauze and other antiseptic appliances furnished by the manufacturers in large quantities, and which must be

¹Korrespondenzblatt für Schweizer Ärzte, 1588.

handled more or less by persons whose main object must necessarily be from the very nature of things, to do a day's work and get a day's pay.

Not long since the attention of the writer was called to a can of iodoform gauze which bore the label of one of the most prominent manufacturers of so-called surgical antiseptic appliances, and upon which it was stated that the contained gauze was treated with 33% of iodoform. He was informed that a careful analysis of the gauze had revealed the fact that it contained but just sufficient of the drug to impart its characteristic odor, and that its beautiful rich iodoform color was due to the fact that it had been treated with a yellow aniline dye. Here was an instance of the grossest mendacity, the risks of which are to be added to the ordinary chances of inefficiency and carelessness in the hands of those to whom are entrusted the preparation of antiseptic materials.

To return to the question of infection by means of imperfectly disinfected catgut, one is reminded of the notable instance reported by Volkmann, in which true anthrax was produced by direct infection from the use of that material. Kocher was early impressed with the difficulties in the way of a thorough sterilization of an animal product in the meshes of which are to be found an almost constant proportion of fatty matter, whose presence will successfully resist our very best efforts to bring the most potent germicides in contact with the minute interstices of its structure. For the purpose of removing this fat, he proposed to treat the gut with juniper oil, but even this has sometimes failed of its object, and, realizing the fact that heat and heat alone, is the only really efficient means of sterilization, and that catgut cannot be thus sterilized without destruction of its texture, he strongly urges that such a material, so easy of infection, and so difficult of disinfection, be permanently banished from surgical practice.

These unfavorable experiences on the part of Volkmann and Kocher will make a deep impression upon the surgical world, and well they may; for no one can possess a feeling of implicit confidence in the precautionary measures grouped under the general head of antisepsis, so long as such grave charges can be brought against a material here-

tofore considered so essential to what is now looked upon as a perfect result, *i. e.*, union of divided structures without inflammation or suppuration.

In order to do away with the necessity of buried ligatures to a great extent, it is considered advisable to perform torsion upon all vessels, and if, upon removing the clamp forceps after the operation, any vessels continue to bleed to ligate these with silk. Deep silk sutures, with or without button attachments, carefully placed so as to obliterate pockets or dead spaces, will frequently do away, according to Kocher, with the necessity for drains of any kind. Where these are needed, he insists, in accordance with his views upon the use of those materials only which can be sterilized by heat, that glass drains alone are applicable or safe. In so far as the operation itself, from the length of time occupied in its performance and the consequent exposure to noxious influences of the wound surfaces for a length of time, or from invasion of parts which render it impracticable to close pockets or dead spaces, demands the use of drains, their advantages are conceded. But in clean cut and straight walled incisions, made during an operation executed with celerity and under antiseptic precautions and surroundings worthy the name, there can be no question concerning the not unmixed good arising from their use. In aseptic cases their use can be indicated, but for a day or two, at the utmost, and they should be withdrawn as soon thereafter as possible.

The use of water-proof coverings to absorbent wound dressings is now practically abandoned. No better bar to the entrance of pathogenic germs has been discovered than the dried germless secretions of the wound itself. The necessity for any permanent antiseptic in the dressings themselves is questioned except in the case of suppurating wounds, and for these, extemporized dressings with iodoform, etc, are far preferable. But in wounds of an aseptic character, gauze, previously sterilized by means of heat, and just prior to application wrung out of a 1-1000 sublimate solution, and crumpled so as to favor permeation of the same by the wound secretions, is advised. Wood wool, sawdust, or paper wool cushions may be added if deemed necessary.

Strangely inconsistent with our present views upon asepsis and the necessity for simple and efficient means for securing the same, is the recommendation of the use of sponges during the operation; yet, Kocher, as well as some other recent writers upon asepsis, mentions cleansing of the sponges, and measures for the resterilization of the same after use. The artificial sponges or "tupfer" of the Germans, made from waste pieces of gauze and tied in a square of the same material so as to form a convenient sized bunch for drying the wound surfaces, possess the double advantage of cheapness which enables one to throw them away after once using, and ease of sterilization by means of prolonged boiling in a covered vessel.

Important as is the matter of the disinfection of the surgeon's hands, it is simply recommended that they be brushed with soap and water, dipped in a 1-1000 sublimate solution, and allowed to remain without being dried upon a towel. The researches of Kümmel, of Hamburg, Forster and Wassing, of Amsterdam, and Furbringer, of Berlin (*ANNALS OF SURGERY*, vol. vii, no. 2 p. 153) demonstrate fully the importance of a careful disinfection of the hands, and particularly of the collections in the subungual spaces. So far as the latter is concerned it has always seemed to the writer that the best way to avoid the accumulation in the subungual spaces is to obliterate the spaces themselves by trimming the finger nails so closely as to render it impracticable for any collection to take place. It seems to be pretty definitely settled that the most vigorous measures compatible with the integrity of the skin itself are needful in order to prevent infection through the surgeon's hands, particularly if he deal with septic and aseptic cases indifferently. Laving the hands in alcohol for a minute or two after scrubbing and rinsing them in running water, and then dipping occasionally during the course of the operation in 1-1000 sublimate solution, seems to have been settled upon by surgeons as offering the best means of protecting wounds from infection through this medium.

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